Author Index

ACHOR, D. S. (see EISSENSTAT, D. M.), 309
ALABOUVETTE, C. (see OLIVAIN, C.), 497
ALARCÓN, J. J. (see HERNÁNDEZ, J. A.), 241
ALLARD, G. (see BRÉGARD, A.), 45
ANDRIEU, V. (see REILLE, M.), 291
APOSTOLAKOS, P. & GALATIS, B., Microtubule and actin filament organization during stomatal morphogenesis in the fern *Asplenium nidus*. II. Guard cells, 209
AVICE, J. C. (see GUERRAND, D.), 109
BARNES, J. D. (see LYONS, T.), 253
BATEMAN, G. L. (see WARD, E.), 323
BENNETT, R. N. (see LUDWIG-MÜLLER, J.), 443
BERTA, G. (see LINGUA, G.), 161
BONFANTE, P. (see MELLO, A.), 511
BONILLA, I. (see GIRALDEZ-RUIZ, N.), 225
BOUCAUD, J. (see GUERRAND, D.), 109
BRÉGARD, A. & ALLARD, G., Sink to source transition in developing leaf blades of tall fescue, 45
CALLAGHAN, T. V. (see CORNELISSEN, J. H. C.), 401
CAMPILLO, A. (see HERNÁNDEZ, J. A.), 241
CANNY, M. J. (see PATE, J. S.), 33
CAPORN, S. J. M. (see CARROLL, J. A.), 423
CARNELLI, A. L. (see CORNELISSEN, J. H. C.), 401
CARROLL, J. A., CAPORN, S. J. M., CAWLEY, L., READ, D. J. & LEE, J. A., The effect of increased deposition of atmospheric nitrogen on *Calluna vulgaris* in upland Britain, 423
CAWLEY, L. (see CARROLL, J. A.), 423
CENTRITTO, M., LEE, H. S. J. & JARVIS, P. G., Interactive effects of elevated and drought on cherry (*Prunus avium*) seedlings. I. Growth, whole-plant water use efficiency and water loss, 129
——, MAGNANI, F., LEE, H. S. J., JARVIS, P. G., Interactive effects of elevated and drought on cherry (*Prunus avium*) seedlings. II. Photosynthetic capacity and water relations, 141
CHENG, J., HIPKIN, C. R. & GALLON, J. R., Effects of inorganic nitrogen compounds on the activity and synthesis of nitrogenase in *Gloeothece* (Nägeli) sp. ATCC 27152, 61
CHUDEK, J. A. (see GLIDEWELL, S. M.), 85
CITTERIO, A. (see LINGUA, G.), 161
CLARK, K. M. (see DEARNALEY, J. D. W.), 199
COOPER, J. I. (see RAYBOULD, A. F.), 265
CORCHETE, P. (see PARANHOS, A.), 51
CORNELISSEN, J. H. C., CARNELLI, A. L. & CALLAGHAN, T. V., Generalities in the growth, allocation and leaf quality responses to elevated CO_2 in eight woody species, 401
DEARNALEY, J. D. W., CLARK, K. M., HEATH, I. B., LEW, R. R. & GORING, D. R., Neither compatible nor self-incompatible pollinations of *Brassica napus* involve reorganization of the papillar cytoskeleton, 199
DE BEAULIEU, J.-L. (see REILLE, M.), 291
DI COLA, A., POMA, A. & SPANÒ, L., Culture senescence and abscisic acid induce saporin production in cultured roots of *Saponaria officinalis*, 381
DUNCAN, G. H. (see GLIDEWELL, S. M.), 85
EDWARDS, M-L. (see RAYBOULD, A. F.), 265
EISSENSTAT, D. M. & ACHOR, D. S., Anatomical characteristics of roots of citrus rootstocks that vary in specific root length, 309
ELHAI, J. (see GANTAR, M.), 373
FACELLI, E., FACELLI, J. M., SMITH, S. E. & MCLAUGHLIN, M. J., Interactive effects of arbuscular mycorrhizal symbiosis, intraspecific competition and resource availability on *Trifolium subterraneum* cv. Mt. Barker, 535
FACELLI, J. M. (see FACELLI, E.), 535
FERNÁNDEZ-TÁRRAGO, J. (see PARANHOS, A.), 51
FERNANDEZ-PIÑAS, F. (see GIRALDEZ-RUIZ, N.), 225
FILION, M., ST-ARNAUD, M. & FORTIN, J. A., Direct interaction between the arbuscular mycorrhizal fungus *Glomus intraradices* and different rhizosphere microorganisms, 525
FORTIN, J. A. (see FILION, M.), 525
FOWLER, D. (see LEITH, I. D.), 277
FUSCONI, A. (see LINGUA, G.), 161
GALATIS, B. (see APOSTOLAKOS, P.), 209
GALLON, J. R. (see CHENG, J.), 61
GAMISANS, J. (see REILLE, M.), 291
GANTAR, M. & ELHAI, J., Colonization of wheat *para*-nodules by the N_2-fixing cyanobacterium *Nostoc* sp. strain 2S9B, 373
GARNERO, L. (see MELLO, A.), 511
GIRALDEZ-RUIZ, N., BONILLA, I. & FERNANDEZ-PIÑAS, F., Role of external calcium in homoeostatis of intracellular pH in the cyanobacterium *Anabaena* sp. strain PCC7120 exposed to low pH, 225
GLIDEWELL, S. M., WILLIAMSON, B., DUNCAN, G. H., CHUDEK, J. A. & HUNTER, G., The development of blackcurrant fruit from flower to maturity: a comparative study by 3D nuclear magnetic resonance (NMR) micro-imaging and conventional histology, 85
GNAVI, E. (see LINGUA, G.), 161
GORING, D. R. (see DEARNALEY, J. D. W.), 199
GRAY, A. J. (see RAYBOULD, A. F.), 265
GRIMOLDI, A. A., INSAUSTI, P., ROITMAN, G. G. & SORIANO, A., Responses to flooding intensity in *Leontodon taraxacoides*, 119
GUERRAND, D., AVICE, J. C., PAVIS, N., PRUD'HOMME, M. P. & BOUCAUD, J., Fructan biosynthesis in *Lolium perenne*? appraisal of soluble and insoluble enzymatic pathways, 109
HANSTEIN, S., MATTSSON, M., JAEGER, H.-J. & SCHJOERRING, J. K., Uptake and utilization of atmospheric ammonia in three native Poaceae species: leaf conductances, composition of apoplastic solution and interactions with root nitrogen supply, 71
HEATH, I. B. (see DEARNALEY, J. D. W.), 199
HERNÁNDEZ, J. A., CAMPILLO, A., JIMÉNEZ, A., ALARCÓN, J. J. & SEVILLA, F., Response of antioxidant systems and leaf water relations to NaCl stress in pea plants, 241
HICKS, W. K. (see LEITH, I. D.), 277
HILGENBERG, W. (see LUDWIG-MÜLLER, J.), 443
HIPKIN, C. R. (see CHENG, J.), 61
HOULE, G. (see MCKENNA, M. F.), 99
HUNTER, G. (see GLIDEWELL, S. M.), 85
HUNTER, T. (see PEI, M. H.), 155
IHMIG, S. (see LUDWIG-MÜLLER, J.), 443
INSAUSTI, P. (see GRIMOLDI, A. A.), 119
JAEGER, H.-J. (see HANSTEIN, S.), 71
JAKOBSEN, I. (see RAVNSKOV, S.), 517
JARVIS, P. G. (see CENTRITTO, M.), 129, 141
JIMÉNEZ, A. (see HERNÁNDEZ, J. A.), 241
JOHNSON, D., LEAKE, J. R. & LEE, J. A., The effects of quantity and duration of simulated pollutant nitrogen deposition on root-surface phosphatase activities in calcareous and acid grasslands: a bioassay approach, 433
JUMPPONEN, A., Spatial distribution of discrete RAPD phenotypes of a root endophytic fungus, *Phialocephala fortinii*, at a primary successional site on a glacier forefront, 333
KIDDLE, G. (see LUDWIG-MÜLLER, J.), 443
LARSEN, J. (see RAVNSKOV, S.), 517
LAURENCE, J. A. (see YUN, S.-C.), 411
LEAKE, J. R. (see JOHNSON, D.), 433
LEE, H. S. J. (see CENTRITTO, M.), 129, 141
LEE, J. A. (see CARROLL, J. A.), 423
——, (see JOHNSON, D.), 433
LEISHMAN, M. R., How well do plant traits correlate with establishment ability? Evidence from a study of 16 calcareous grassland species, 487
LEITH, I. D., HICKS, W. K., FOWLER, D. & WOODIN, S. J., Differential responses of UK upland plants to nitrogen deposition, 277
LEUCHTMANN, A. (see MEIJER, G.), 355
LEW, R. R. (see DEARNALEY, J. D. W.), 199
LINGUA, G., SGORBATI, S., CITTERIO, A., FUSCONI, A., TROTTA, A., GNAVI, E. & BERTA, G., Arbuscular mycorrhizal colonization delays nucleus senescence in leek root cortical cells, 161

LU, C. & VONSHAK, A., Characterization of PSII photochemistry in salt-adapted cells of cyanobacterium *Spirulina platensis*, 231

LUDWIG-MÜLLER, J., BENNETT, R. N., KIDDLE, G., IHMIG, S., RUPPEL, M. & HILGENBERG, W., The host range of *Plasmodiophora brassicae* and its relationship to endogenous glucosinolate content, 443

LYONS, T., OLLERENSHAW, J. H. & BARNES, J. D., Impacts of ozone on *Plantago major*: apoplastic and symplastic antioxidant status, 253

MCKENNA, M. F. & HOULE, G., The effect of light on the growth and reproduction of *Floerkea proserpinacoides*, 99

MCLAUGHLIN, M. J. (see FACELLI, E.), 535

MAGNANI, F. (see CENTRITTO, M.), 141

MASKELL, L. C. (see RAYBOULD, A. F.), 265

MATTSSON, M. (see HANSTEIN, S.), 71

MEIJER, G. & LEUCHTMANN, A., Multistrain infections of the grass *Brachypodium sylvaticum* by its fungal endophyte *Epichloë sylvatica*, 355

MELLO, A., GARNERO, L. & BONFANTE, P., Specific PCR-primers as a reliable tool for the detection of white truffles in mycorrhizal roots, 511

MILLAR, A. J., Tansley Review No. 103 Biological clocks in *Arabidopsis thaliana*, 175

NIINEMETS, Ü., Energy requirement for foliage formation is not constant along canopy light gradients in temperate deciduous trees, 459

OLIVAIN, C. & ALABOUVETTE, C., Process of tomato root colonization by a pathogenic strain of *Fusarium oxysporum* f. sp. *lycopersici* in comparison with a non-pathogenic strain, 497

OLLERENSHAW, J. H. (see LYONS, T.), 253

OLSSON, P. A. (see RAVNSKOV, S.), 517

PARANHOS, A., FERNÁNDEZ-TÁRRAGO, J. & CORCHETE, P., Relationship between active oxygen species and cardenolide production in cell cultures of *Digitalis thapsi*: effect of calcium restriction, 51

PATE, J. S. & CANNY, M. J., Quantification of vessel embolisms by direct observation: a comparison of two methods, 33

PAVIS, N. (see GUERRAND, D.), 109

PEI, M. H., HUNTER, T. & ROYLE, D. J., Host–pathogen relationship between *Salix* and *Melampsora* sheds light on the parentage of some biomass willows, 155

PLOWMAN, A. B., RICHARDS, A. J. & TREMAYNE, M. A., Environmental effects on the fitness of triazine-resistant and triazine-susceptible *Brassica rapa* and *Chenopodium album* in the absence of herbicide, 471

POMA, A. (see DI COLA, A.), 381

PRUD'HOMME, M. P. (see GUERRAND, D.), 109

RAVNSKOV, S., LARSEN, J., OLSSON, P. A. & JAKOBSEN, I., Effects of various organic compounds on growth and phosphorus uptake of an arbuscular mycorrhizal fungus, 517

RAYBOULD, A. F., MASKELL, L. C., EDWARDS, M-L., COOPER, J. I. & GRAY, A. J., The prevalence and spatial distribution of viruses in natural populations of *Brassica oleracea*, 265

READ, D. J. (see CARROLL, J. A.), 423

REILLE, M., GAMISANS, J., ANDRIEU, V. & DE BEAULIEU, J.-L., The Holocene at Lac de Creno, Corsica, France: a key site for the whole island, 291

RICHARDS, A. J. (see PLOWMAN, A. B.), 471

RITCHIE, R. J., Tetraphenylphosphonium cation (TPP^+) is not a reliable membrane potential probe in the cyanobacterium *Synechococcus R-2* PCC 7942, 387

ROITMAN, G. G. (see GRIMOLDI, A. A.), 119

ROYLE, D. J. (see PEI, M. H.), 155

RUPPEL, M. (see LUDWIG-MÜLLER, J.), 443

SCHJOERRING, J. K. (see HANSTEIN, S.), 71

SCHMIDT, W., Review: Mechanisms and regulation of reduction-based iron uptake in plants, 1

SEVILLA, F. (see HERNÁNDEZ, J. A.), 241

SGORBATI, S. (see LINGUA, G.), 161

SMITH, S. E. (see FACELLI, E.), 535

SORIANO, A. (see GRIMOLDI, A. A.), 119

SPANÒ, L. (see DI COLA, A.), 381

ST-ARNAUD, M. (see FILION, M.), 525

TREMAYNE, M. A. (see PLOWMAN, A. B.), 471

TROTTA, A. (see LINGUA, G.), 161

VALVERDE, C. & WALL, L. G., Time course of nodule development in the *Discaria trinervis* (Rhamnaceae) – *Frankia* symbiosis, 345

VONSHAK, A. (see LU, C.), 231

WALL, L. G. (see VALVERDE, C.), 345

WARD, E. & BATEMAN, G. L., Comparison of *Gaeumannomyces*- and *Phialophora*-like fungal pathogens from maize and other plants using DNA methods, 323

WILLIAMSON, B. (see GLIDEWELL, S. M.), 85

WOODIN, S. J. (see LEITH, I. D.), 277

YI, C. (see ZHANG, X.), 27

YUN, S.-C. & LAURENCE, J. A., The response of clones of *Populus tremuloides* differing in sensitivity to ozone in the field, 411

ZHANG, F. (see ZHANG, X.), 27

ZHANG, X., YI, C. & ZHANG, F., Iron accumulation in root apoplasm of dicotyledonous and graminaceous species grown on calcareous soil, 27

Subject Index

Abscisic acid (ABA), 381
Acetylene reduction, 373
Actin filaments, 209
Actin microfilaments, 199
Actinorhiza, 345
Active oxygen species, 51
Aerenchyma, 119
Allium porrum L. (leek), 161
Allocation, 119
Ammonia compensation point, 71
Ammonium, 61, 433
Annual plant, 99
Antioxidant, 253, 411
Antioxidant enzymes, 241
Apoplast, 253
Arbuscular mycorrhizal (AM) fungi, 525
Arbuscular mycorrhizal fungus, 517
Arbuscular mycorrhizas, 161
Ascorbate, 241, 253
Aspen (*Populus tremuloides*), 411
Asplenium nidus, 209
Auxins, 443
Beet western yellows virus, 265
Biomass allocation, 99
Biomass willow, 155
Brachypodium sylvaticum, 355
Brassica napus, 199
Brassica oleracea (wild cabbage), 265
Brassica rapa, 471
Calcium, 51, 225
Calluna vulgaris, 423
Carbon, 459
Carbon dioxide, 401
Cardenolides, 51
Cauliflower mosaic virus, 265
Cephalosporium maydis, 323
Chenopodium album, 471
Cherry, 129, 141
Circadian rhythm, 175
Citrus, 309
^{14}C-labelling, 45
Climate, 471
Competition, 487
Corsica, 291
Cryptogams, 423
Cyanobacteria, 373, 387
Cyanobacterium, 225
Cyanobacterium (*Spirulina platensis*), 231
2,4-D, 373
Deciduous trees, 401
Defoliation, 109
Density dependence, 535
Detoxification, 253
Deuteromycetes, 333
Digitalis thapsi, 51
Discaria trinervis, 345
DNA content, 487
Drought, 129
Dry-mass allocation, 129
Electrochemical gradient, 387
Electron microscopy, 497
Elevated , 141, 129
Embolisms, 33
Endophyte, 355
Ephemeral plant, 99
Epichloë sylvatica, 355
Erica cinerea (Bell-heather), 277
Eriophorum vaginatum (Cotton-grass), 277
Eutrophication, 423
Evergreen trees, 401
Exodermis, 309
Extraradical mycelium, 525
Fe-protein modification, 61
Festuca arundinacea (tall fescue), 45
Fe-superoxide dismutase, 241
Floerkea proserpinacoides (false mermaid), 99
Flood, 119
Flooding Pampa Grasslands, 119
Flow cytometry, 161
Foliar construction cost, 459
Foliar nitrogen, 401
Foliar uptake, 71
Frankia, 345
Fructans, 109
Fructosyltransferase, 109
Fusarium oxysporum, 497
Gaeumannomyces, 323
Glacial vegetation, 291
Glacier forefront, 333
Gloeothece, 61
Glomus intraradices, 525
Glucosinolates, 443
Glutamione synthetase, 71
Glutathione, 51, 241
Growth, 129
Growth form, 487
Guard cells, 209
GUS gene marker, 497
Height, 487
Herbicide, 471
Holocene, 291
Host range, 443
Hydrogen peroxide, 51
Hypodermis, 309
Infection process, 497
Instantaneous transpiration efficiency, 141
Interactions, 525
Intercellular penetration, 345
Iron accumulation, 27
Iron deficiency, 1
Iron-uptake regulation, 1
Irradiance, 459
Late wilt, 323
Leaf area ratio, 401
Leaf blades, 45
Leaf morphology, 119
Leontodon taraxacoides, 119
Light, 99
Light microscopy, 497
Lignin, 459
Litter accumulation, 423
Lolium perenne, 109
Low temperature scanning electron microscopy (LTSEM), 85
Maize, 323
Melampsora capraearum, 155
Melampsora epitea, 155
Membrane potential, 387
Microtubule organizing centres, 209
Microtubules, 199, 209
Multiple infections, 265
multiplex PCR, 511
Mycorrhizas, 535
N_2 fixation, 61, 373
Nardus stricta (Mat-grass), 277
Nested-PCR, 511
Nitrate, 61
Nitric oxide, 61
Nitrite, 61
Nitrogen, 71, 141, 277, 459
Nitrogen deposition, 423, 433
Nitrogenase synthesis and degradation, 61
NMR imaging, 85
Nodule development, 345
Nomenclature, 155

Non-structural carbohydrates, 459
Nuclei, 161
Nutrient cycling, 433
Organic compounds, 517
Organic phosphorus, 433
Oxidative stress, 241
Ozone, 253, 411
P acquisition, 535
Para-nodule, 373
Parentage, 155
Passage cells, 309
Pathogens, 525
PCR-primers, 511
Penetration, 497
pH homeostasis, 225
pH shift, proton fluxes, 225
Phialocephala fortinii, 333
Phialophora, 323
Phlein sucrase, 109
Phospholipid fatty acids, 517
Phosphomonoesterase, 433
Phosphorus uptake, 517
Photoperiodism, 175
Photoreceptor, 175
Photorespiration, 71
Photosynthesis, 231, 411
Photosystem II (PSII) photochemistry, 231
Pisum sativum, 241
Plant age, 253
Plant cell–cell interactions, 199
Plant water-use efficiency, 129
Plantago major, 253
Plasma membrane, 1
Plasmodiophora brassicae, 443
Pollen spectra, 291
Polyphasic chlorophyll fluorescence, 231
Population structure, 355
PPFR, 99
RAPD-phenotypes, 333
Rare plant, 99
Refilling embolisms, 33
Relative growth rate (RGR), 99, 487
Reproduction, 355
Resin histology, 85
Resistance, 253
Resource availability, 535
RGR, 401
Rhizosphere, 1
Ribes nigrum, 85
Ribosomal DNA sequences, 323
Ribosome-inactivating proteins (RIPs), 381
Root anatomy, 309
Root apoplasm, 27
Root diameter, 309
Root xylem, 33
Roots, 1
Rubisco, 141
Rusts, 155
Salix × *calodendron*, 155
Salix × *dasyclados*, 155
Salt adaptation, 231
Salt stress, 241
Saponaria officinalis, 381
Saporin, 381
Seed mass, 487
Self-incompatibility, 199
Senescence, 161, 381
Shade-tolerance, 459
Shoot extension, 423
Shrub, 401
Sink to source transition, 45
Size distribution, 535
Soil-Fe, 27
Spatial distribution, 333
Specific leaf area, 401
Specific root length (SRL), 309
Stomatal conductance, 71, 411
Structural carbohydrates, 459
Surface rendering, 85
Symbiosis, 355, 373
Take-all, 323
Tetraphenylphosphonium cation (TPP^+), 387
Three-dimensional reconstruction, 85
Tolerance, 471
Tomato (*Lycopersicon esculentum*), 497
Total shoot nitrogen, 423
Transcriptional control, 175
Transmission mode, 355
Transpiration, 33
Triazine, 471
Tuber borchii, 511
Tuber magnatum, 511
Turnip mosaic virus, 265
Turnip yellow mosaic virus, 265
Ultrastructural study, 497
Vaccinium vitis-idaea (Cowberry)., 277
Vegetation history, 291
Vessel contents, 33
Water depth, 119
Water loss, 129
Water relations, 141, 241
Water stress, 141
Wheat, 373
Winter injury, 423
Xanthorrhea, 33
Xylem sap., 33